



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,243	02/06/2004	John G. Carman	15740.005	8954

7590 12/13/2006

Mr. Fuller  
FENNEMORE CRAIG  
Suite 2600  
3003 N. Central Avenue  
Phoenix, AZ 85012

EXAMINER
----------

ROBINSON, KEITH O NEAL

ART UNIT	PAPER NUMBER
----------	--------------

1638

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/772,243

Applicant(s)

CARMAN, JOHN G.

Examiner

Keith O. Robinson, Ph.D.

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 13-18, 29-36 and 39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-18, 29-36 and 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 25, 2006 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action mailed June 28, 2005.
3. Claims 11, 12, 19-28, 37 and 38 were previously cancelled.
4. Claims 1, 13 and 29 have been amended and new claim 39 has been added.
5. Claims 1-10, 13-18, 29-36 and 39 are under examination.

### ***Response to Arguments***

6. Applicant's arguments, filed September 25, 2006, with respect to the 35 USC § 102/103 rejection of claims 1-10, 13-18, 29-36 in the Office Action mailed March 22, 2006, have overcome the rejection. The rejection is withdrawn.

### ***Claim Rejections - 35 USC § 112, first paragraph – Written Description***

7. Claims 1-10, 13-18 and 29-36 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the

application was filed, had possession of the claimed invention. The rejection is repeated for the reasons of record as set forth in the Office Action mailed March 22, 2006, as applied to claims 1-10, 13-20 and 29-36 (see pages 3-6). Applicant's arguments, filed September 25, 2006, have been fully considered but they are not persuasive.

Applicant argues that the written description requirement for the claimed invention is adequate because the newly amended claims are directed to a method of producing an angiospermous apomictic plant in the Poaceae or Asteraceae family and that the claim now further requires cytoembryological identification (see page 8, 1<sup>st</sup> paragraph of 'Remarks' filed September 25, 2006).

This is not persuasive. As stated in the previous Office Action mailed March 22, 2006, the specification only describes the method using the angiospermous plants of *Antennaria*, *Tripsacum* and *Sorghum* (see page 4, 1<sup>st</sup> paragraph). The specification does not provide an adequate written description for each and every plant in the Poaceae or Asteraceae family as is broadly claimed. The fact that the claim now further requires cytoembryological identification does not overcome the rejection because how the plants are identified does not change the issue that the specification only describes the method using the angiospermous plants of *Antennaria*, *Tripsacum* and *Sorghum*.

***Claim Rejections - 35 USC § 112, first paragraph - Enablement***

8. Claims 1-10, 13-18 and 29-36 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable

Art Unit: 1638

one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The rejection is repeated for the reasons of record as set forth in the Office Action mailed March 22, 2006, as applied to claims 1-10, 13-20 and 29-36 (see pages 6-10). Applicant's arguments, filed September 25, 2006, have been fully considered but they are not persuasive.

Applicant argues that the new claims are enabled because they encompass the working examples of plants from the Poaceae and Asteraceae families (see page 9, last two lines to page 10, end of 2<sup>nd</sup> paragraph of 'Remarks' filed September 25, 2006).

This is not persuasive. It would require undue trial and error experimentation for one skilled in the art to make and use the claimed invention because one skilled in the art would have to determine which, if any, of the plants from the Poaceae and Asteraceae families could be used in the claimed invention. The specification only provides evidence that the angiospermous plants of *Antennaria*, *Tripsacum* and *Sorghum* would work in the claimed invention (see page 28, lines 10-32 of the specification, for example). In addition, the requirement of cytoembryological identification does not enable the claims because one skilled in the art would still have to determine which, if any, of the plants from the Poaceae and Asteraceae families could be used in the claimed invention as the claim is broadly claimed.

Applicant argues that there are several working examples provided of successfully increasing the genetic stability of apomixis in a facultative apomictic plant from the Poaceae and Asteraceae family (see page 11, 3<sup>rd</sup> paragraph of 'Remarks' filed September 25, 2006).

This is not persuasive. The specification only provides evidence that the angiospermous plants of *Antennaria*, *Tripsacum* and *Sorghum* would work in the claimed invention (see page 28, lines 10-32 of the specification, for example). It would require undue trial and error experimentation for one skilled in the art to make and use the claimed invention because one skilled in the art would have to determine which, if any, of the plants from the Poaceae and Asteraceae families other than *Antennaria*, *Tripsacum* and *Sorghum* could be used in the claimed invention.

Applicant argues that a person of ordinary skill in the art would know how to conduct cytoembryological analyses of plants, hybridize selected sexual plant lines, recover seed, sow and raise plants from the seed and identify facultatively apomictic progeny (see page 11, last paragraph to page 12, 1<sup>st</sup> paragraph of 'Remarks' filed September 25, 2006).

The Examiner agrees that a person of ordinary skill in the art would understand how to conduct cytoembryological analyses of plants; however, this does not enable the claimed invention because a person of ordinary skill in the art would not know which plants of the Poaceae and Asteraceae families other than *Antennaria*, *Tripsacum* and *Sorghum* could be used in the claimed invention because the specification only provides evidence of *Antennaria*, *Tripsacum* and *Sorghum* used in the claimed invention.

Applicant argues that the procedures used in claimed invention are well known in the art and have been used for years (see page 12, 3<sup>rd</sup> paragraph to page 14, 2<sup>nd</sup> paragraph of 'Remarks' filed September 25, 2006).

This is not persuasive. A person of ordinary skill in the art would not know which plants of the Poaceae and Asteraceae families other than *Antennaria*, *Tripsacum* and *Sorghum* could be used in the claimed invention because the specification only provides evidence of *Antennaria*, *Tripsacum* and *Sorghum* used in the claimed invention. In addition, the Examiner has provided evidence of the unpredictability of producing apomictic plants in the Office Action mailed June 28, 2005, pages 10-13 and Applicant has not provided any evidence to overcome such evidence.

### ***Double Patenting***

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 12, 14 and 15-17 of U.S. Patent No. 6,750,376. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in U.S. Patent No. 6,750,376 are drawn to a

Art Unit: 1638

method for obtaining apomictic plants from sexual plants wherein initiation of embryo sac formation in one plant occurs about the same time as or before meiosis in the other plant.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-10, 13-18, 29-36 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bashaw (Apomixis in crop improvement. *In* Hybridization of crop plants. 1980. pages 45-63), in view of Savidan (Crop Sci. 22: 467-469, 1982), further in view of Dujardin et al (Euphytica 38: 229-235, 1988).

The claims read on a method of producing an angiospermous apomictic plant that exhibits an increased genetic stability for apomixis compared to an apomictic parent plant from which the apomictic plant is produced comprising producing a facultatively apomictic parent plant by selecting sexual plants from the Poaceae or Asteraceae family, cytoembryologically identifying sexual plants having divergent reproductive schedules of ovule development, hybridizing the identified sexual plants having divergent reproductive schedules of ovule development, selecting hybrid plants that are apomictic to be the apomictic parent plant and doubling the chromosome number of the apomictic parent plant.



Bashaw teaches a method of producing angiospermous apomictic plants comprising selecting sexual plants from the Poaceae family, namely buffelgrass, hybridizing sexual plants with apomictic plants, recovering hybrid seed, and selecting a hybrid plant that is apomictic to the apomictic parent plant (see page 59, Figure 3). The plants taught by Bashaw would inherently possess divergent reproductive schedules of ovule development because Bashaw teaches that the sexual plant is heterozygous for method of reproduction (see page 58, 1<sup>st</sup> full paragraph).

Bashaw does not teach cytoembryological identification or chromosome doubling of apomictic plants.

Savidan teaches cytoembryological identification of apomictic hybrids between sexual and apomictic *P. maximum* (see page 468, 1<sup>st</sup> column, last paragraph to 2<sup>nd</sup> column, paragraphs 1 and 2 and Table 2). Though Savidan does not teach cytoembryological identification of sexual plants having divergent reproductive schedules, one of ordinary skill in the art would understand that cytoembryological identification can be used to identify sexual plants having divergent reproductive schedules because Savidan teaches “embryological test [are] more rapid than progeny test because the former is applied to the plant itself” (see page 468, 2<sup>nd</sup> column, 4<sup>th</sup> paragraph).

Dujardin et al teach the chromosome doubling of apomictic plants (see page 234, Figure 3). In addition, Dujardin et al teaches that chromosome doubled plant “should [be] useful as a pollinator on tetraploid pearl millet to produce chromosome substitution

Art Unit: 1638

lines for the purpose of developing apomictic pearl millet" (see page 234, 2<sup>nd</sup> column, lines 5-10).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of Applicant's invention to combine the above teachings to produce a method of producing an angiospermous apomictic plant that exhibits increased genetic stability for apomixis.

One of ordinary skill in the art would have been motivated to combine these teachings because Bashaw teaches "[a]pomictic plants generally are highly heterozygous and when the apomictic barrier is broken, there is abundant variability from which to select new types" (see page 57, 2<sup>nd</sup> paragraph).

In addition, one of ordinary skill in the art would have reasonable expectation of success based on the success of Bashaw in producing apomictic buffelgrass cultivars (see page 59, Figure 3).

### ***Conclusion***

13. No claims are allowed.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith O. Robinson, Ph.D. whose telephone number is 571-272-2918. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone

Art Unit: 1638

number for the organization where this application or proceeding is assigned is 571-273-8300.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Keith O. Robinson, Ph.D.

December 6, 2006

DAVID H. KRUSE, PH.D.  
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read "David H. Kruse", written over the printed name and title.